Space Weather Highlights **SWPC PRF 2216**
12 February - 18 February 2018 **19 February 2018**

Solar activity was at very low levels on 13-18 Feb and low levels on 12 Feb. The strongest flare of the period was a C1 from Region 2699 (S07, L=165, class/area Dai/240 on 10 Feb) at 12/0135 UTC. The event produced an associated asymmetric halo signature first observed in SOHO/LASCO C2 imagery at 12/0125 UTC. Analysis and modeling of the event suggested arrival of the CME at Earth on 15 Feb.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at background levels 12-16 Feb. An increase to moderate levels on 17 Feb and to high levels on 18 Feb was observed in response influence from a negative polarity CH HSS.

Geomagnetic field activity ranged from quiet to active levels. Quiet conditions were observed on 12-14 Feb. On 15 Feb, arrival of the 12 Feb CME produced only one isolated period of active during the day. Total magnetic field strength increased to a peak of 15 nT around 16/0530 UTC while Bz remained mostly positive. Solar wind speeds were relatively slow, between 300-400 km/s through the event. Active levels were reached again on 17 and 18 Feb in response to influence from a negative polarity CH HSS. Solar wind speeds continued to increase over the two days to a peak of about 600 km/s late on 18 Feb.

Space Weather Outlook
19 February - 17 March 2018

Solar activity is expected to be very low through the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to range from normal to high levels. High levels from CH HSS influence are expected from 19-25 Feb. A transition back to normal levels is expected from 26 Feb to 17 Mar.

Geomagnetic field activity is expected to range quiet to G1 (Minor) geomagnetic storm conditions. Influence from a negative polarity CH HSS is expected to produce isolated periods of G1 (Minor) storming on 19 Feb. A decrease to quiet to active levels by 20 Feb and quiet to unsettled levels over 21-23 Feb is expected as influence from the CH HSS slowly wanes. Quiet to unsettled levels are again expected on 04 Mar and 15 March, with quiet to active levels expected on 14 Mar and 16-17 Mar, as multiple, recurrent CH HSSs are anticipated to become geoeffective. The remainder of the outlook period is expected to observe quiet conditions.

Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background Flux	Flares						
					X-ray			Optical			
					C	M	X	S	1	2	3	4
12 February	79	26	230	B1.0	1	0	0	0	0	0	0	0
13 February	76	20	180	A5.8	0	0	0	0	0	0	0	0
14 February	75	18	140	A5.0	0	0	0	0	0	0	0	0
15 February	73	15	100	A4.7	0	0	0	0	0	0	0	0
16 February	72	12	40	A4.3	0	0	0	0	0	0	0	0
17 February	69	12	40	A4.3	0	0	0	0	0	0	0	0
18 February	70	0	0	A3.6	0	0	0	0	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm ^{2} -day -sr)			Electron Fluence (electrons/cm^2 -day -sr)	
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
12 February		8.3e+05	1.7e+04	3.4e+03	8.5e+04	
13 February		1.3e+06	1.7e+04	3.5e+03	7.5e+04	
14 February		1.7e+06	1.7e+04	3.7e+03	6.0e+04	
15 February		2.7e+06	1.6e+04	3.6e+03	6.7e+04	
16 February		1.4e+06	1.6e+04	3.5e+03	6.2e+04	
17 February		9.6e+05	1.7e+04	3.5e+03	2.1e+06	
18 February		3.1e+06	1.5e+04	3.5e+03	6.2e+07	

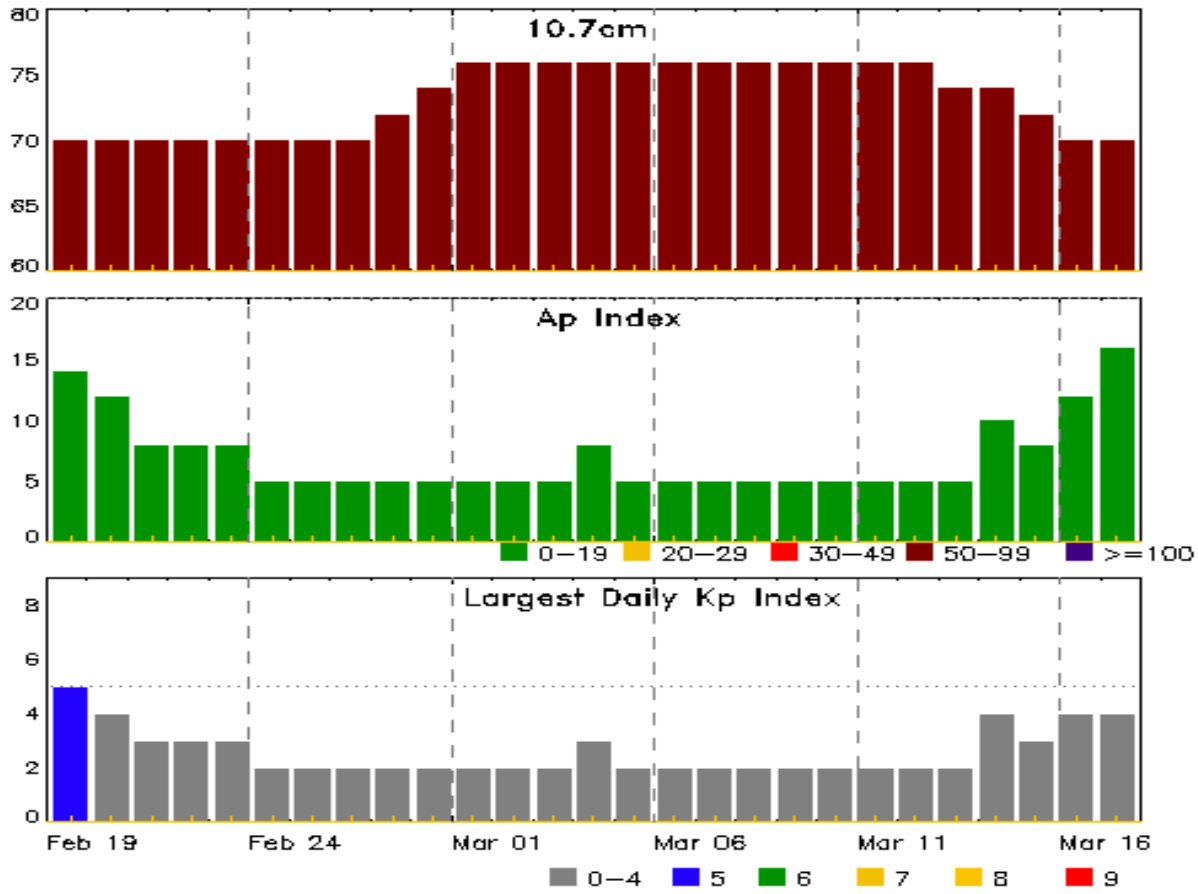
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
12 February	3	0-2-2-0-0-0-2-1	0	0-0-0-0-0-0-1-0	4	0-1-2-1-0-0-2-1
13 February	3	0-1-1-1-1-1-1-1	0	0-0-0-0-0-0-0-0	3	0-1-1-1-1-1-1-1
14 February	2	1-0-0-0-1-1-1-1	0	0-0-0-0-0-0-0-0	3	1-0-0-0-0-0-1-2
15 February	6	1-0-2-1-2-3-2-2	13	0-0-2-2-4-5-2-2	11	1-0-2-1-2-4-3-3
16 February	7	2-2-3-2-1-1-1-2	4	2-1-2-1-1-1-1-1	7	2-2-2-1-1-1-2-2
17 February	10	2-4-3-1-3-1-1-1	18	2-3-3-5-5-2-1-1	12	3-4-3-2-3-2-1-2
18 February	14	4-1-3-2-3-4-2-2	19	3-2-3-4-4-5-2-1	32	4-2-3-2-3-4-2-2

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
12 Feb 2050	WATCH: Geomagnetic Storm Category G1 predicted	
13 Feb 2105	WATCH: Geomagnetic Storm Category G1 predicted	
15 Feb 1334	WARNING: Geomagnetic K = 4	15/1335 - 1800
15 Feb 1714	EXTENDED WARNING: Geomagnetic K = 4	15/1335 - 2300
15 Feb 1715	ALERT: Geomagnetic K = 4	15/1711
15 Feb 1716	WARNING: Geomagnetic K = 5	15/1715 - 2100
15 Feb 2252	EXTENDED WARNING: Geomagnetic K = 4	15/1335 - 16/0600
17 Feb 0518	WARNING: Geomagnetic K = 4	17/0518 - 1800
17 Feb 0525	ALERT: Geomagnetic K = 4	16/0523
18 Feb 0124	WARNING: Geomagnetic K = 4	18/0124 - 1500
18 Feb 0127	ALERT: Geomagnetic K = 4	18/0127
18 Feb 1449	EXTENDED WARNING: Geomagnetic K = 4	18/0124 - 2359
18 Feb 1613	ALERT: Electron 2MeV Integral Flux >= 1000pfu	18/1555
18 Feb 2055	EXTENDED WARNING: Geomagnetic K = 4	18/0124 - 19/0600

Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
19 Feb	70	14	5	05 Mar	76	5	2
20	70	12	4	06	76	5	2
21	70	8	3	07	76	5	2
22	70	8	3	08	76	5	2
23	70	8	3	09	76	5	2
24	70	5	2	10	76	5	2
25	70	5	2	11	76	5	2
26	70	5	2	12	76	5	2
27	72	5	2	13	74	5	2
28	74	5	2	14	74	10	4
01 Mar	76	5	2	15	72	8	3
02	76	5	2	16	70	12	4
03	76	5	2	17	70	16	4
04	76	8	3				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV

No Events Observed

Flare List

	Time						
				Optical			
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
12 Feb	0015	0135	0321	C1.5			2699
12 Feb	0656	0700	0703	B4.4			2699
12 Feb	1136	1143	1225	B2.8			2699
12 Feb	2132	2136	2140	B1.2			2699
14 Feb	0822	0825	0827	B1.2			2699
14 Feb	1443	1447	1450	B1.0			2699
14 Feb	1554	1608	1620	B1.4			2699
14 Feb	2335	2339	2341	B1.5			2699
15 Feb	0047	0051	0053	B1.2			2699
15 Feb	0311	0314	0316	B1.5			2699
15 Feb	0623	0626	0628	B1.1			2699
15 Feb	2219	2223	2226	B1.4			2699
15 Feb	2350	2355	2358	B1.2			2699
16 Feb	0427	0437	0442	B3.4			2699
16 Feb	2057	2112	2119	A9.7			2699
17 Feb	1807	1815	1828	B1.4			2699

Region Summary

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 2698													
02 Feb	S03E77	194	10	2	Axx	1	A								
03 Feb	S03E62	196	plage												
04 Feb	S03E47	198	plage												
05 Feb	S03E32	200	plage												
06 Feb	S03E17	202	plage												
07 Feb	S03E02	204	plage												
08 Feb	S03W13	205	plage												
09 Feb	S03W28	207	plage												
10 Feb	S03W43	209	plage												
11 Feb	S03W58	211	plage												
12 Feb	S03W73	213	plage												
13 Feb	S03W88	215	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 204

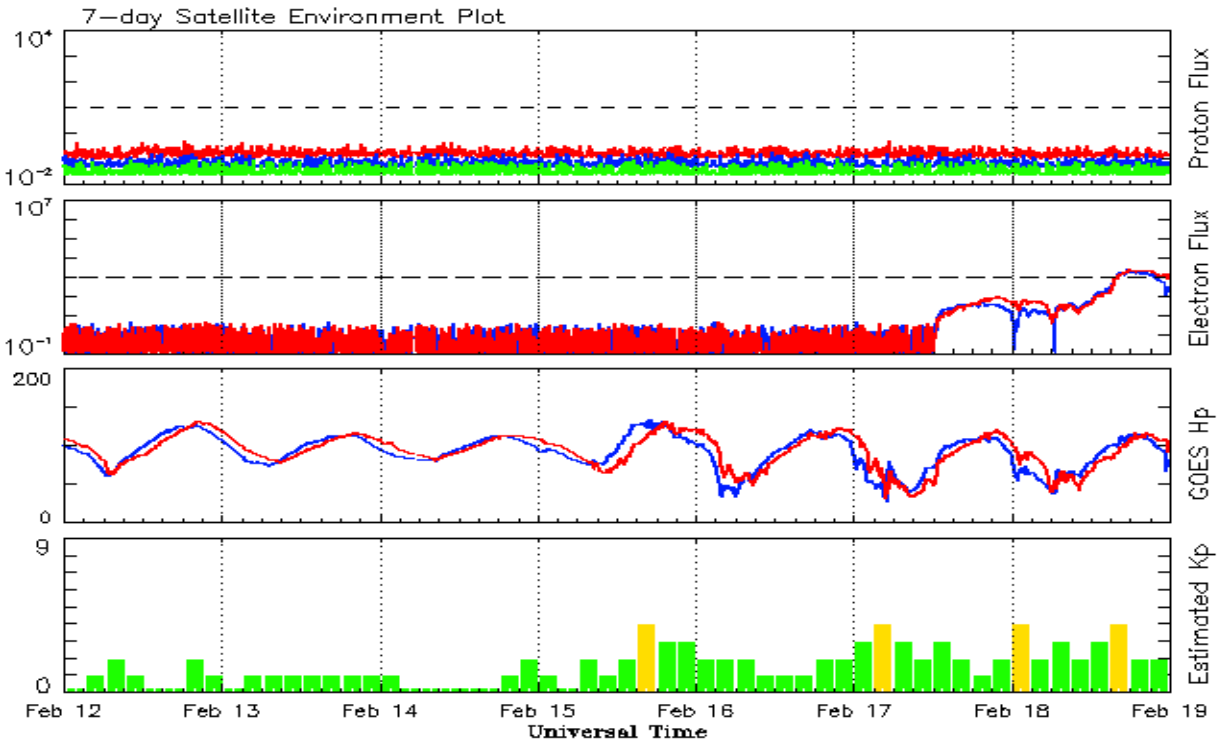
		Region 2699													
04 Feb	S04E74	171	80	2	Hsx	1	A	1			3	1			
05 Feb	S06E64	168	130	4	Cso	3	B				9				
06 Feb	S08E51	168	160	9	Dso	7	B	1			5				
07 Feb	S08E39	167	200	10	Dso	10	BG	2			8				
08 Feb	S06E25	167	200	9	Dai	12	BG				6	1			
09 Feb	S07E13	166	210	9	Dai	13	B				4				
10 Feb	S07E01	165	240	10	Dai	25	B	1			1				
11 Feb	S07W14	167	230	10	Dai	14	B								
12 Feb	S07W29	169	230	10	Dai	16	B	1							
13 Feb	S07W44	171	180	10	Dsi	10	B								
14 Feb	S08W54	168	140	10	Dso	8	B								
15 Feb	S08W68	168	100	11	Cao	5	B								
16 Feb	S08W82	169	40	3	Hax	2	A								
								6	0	0	36	2	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 165

Recent Solar Indices (preliminary)
Observed monthly mean values

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
Month	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
				2016					
February	56.0	33.8	0.61	49.6	31.5	103.5	98.1	10	12.0
March	40.9	32.5	0.80	47.7	30.2	91.6	96.6	11	11.8
April	39.2	22.7	0.58	45.0	28.7	93.4	95.3	10	11.8
May	48.9	30.9	0.64	42.1	26.9	93.1	93.2	12	11.7
June	19.3	12.3	0.65	39.0	24.9	81.9	90.4	9	11.4
July	36.8	19.4	0.53	36.5	23.1	85.9	87.7	10	11.2
August	50.4	30.1	0.60	34.2	21.6	85.0	85.5	10	11.2
September	37.4	26.8	0.72	32.1	19.9	87.8	83.7	16	11.3
October	30.0	20.0	0.67	31.1	18.9	86.1	82.5	16	11.6
November	22.4	12.8	0.57	29.4	17.9	78.7	81.1	10	11.6
December	17.6	11.1	0.64	28.1	17.1	75.1	80.0	10	11.4
				2017					
January	28.1	15.7	0.55	27.3	16.7	77.4	79.4	10	11.3
February	22.0	15.8	0.71	25.5	15.9	76.9	78.7	10	11.3
March	25.4	10.6	0.42	24.6	15.4	74.6	78.6	15	11.5
April	30.4	19.4	0.64	24.3	14.9	80.9	78.4	13	11.5
May	18.1	11.3	0.62	23.1	14.0	73.5	77.7	9	11.3
June	18.0	11.5	0.64	22.0	13.3	74.8	77.3	7	11.3
July	18.8	10.7	0.59	20.8	12.6	77.7	76.8	9	11.0
August	25.0	19.6	0.80			77.9		12	
September	42.2	26.2	0.62			92.0		19	
October	16.0	7.9	0.49			76.4		11	
November	7.7	3.4	0.44			72.1		11	
December	7.6	4.9	0.64			71.5		8	
				2018					
January	7.8	4.0	0.51			70.0		6	

Note: Values are final except for the most recent 6 months which are considered preliminary. Cycle 24 started in Dec 2008 with an RI=1.7.



Weekly Geosynchronous Satellite Environment Summary
Week Beginning 12 February 2018

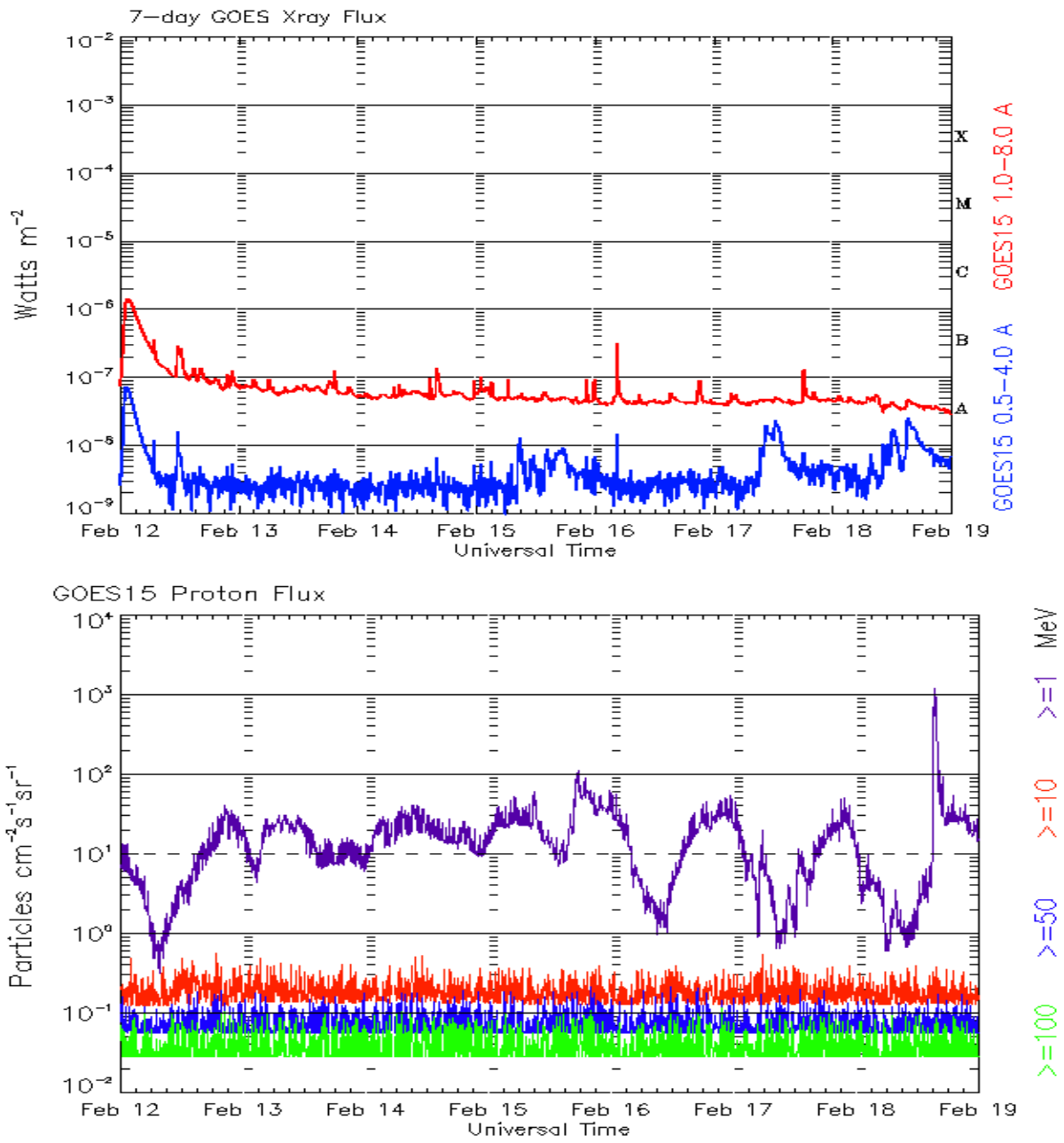
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm^2-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.



Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 12 February 2018

The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/cm^2 -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

The Weekly has been published continuously since 1951 and is available online since 1997.

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